

CLAIMS

What is claimed is:

1. An isolated polypeptide molecule comprising residues 26 to 546 of SEQ ID NO:2.

2. The isolated polypeptide molecule according to claim 1, wherein the polypeptide molecule comprises residues 26 to 627 of SEQ ID NO:2.

3. The isolated polypeptide molecule according to claim 1, wherein the polypeptide molecule comprises residues 1 to 627 of SEQ ID NO:2.

4. The isolated polypeptide molecule of claim 1, wherein at least nine contiguous amino acid residues of SEQ ID NO:2 are operably linked via a peptide bond or polypeptide linker to a second polypeptide selected from the group consisting of maltose binding protein, an immunoglobulin constant region, and a polyhistidine tag.

5. The isolated polypeptide molecule according to claim 1, wherein the polypeptide comprises a fusion protein wherein polypeptide is conjugated with a compound selected from the group consisting of keyhole limpet hemocyanin, muramyl dipeptide, histidine-tag, beta gal, and palmitic acid.

6. An isolated polynucleotide molecule encoding the polypeptide molecule according to claim 1.

7. An expression vector comprising the following operably linked elements:

- a) a transcription promoter;
 - b) a DNA segment encoding the polypeptide according to claim 6;
- and

c) a transcription terminator.

8. An expression vector of claim 7 wherein the DNA segment further encodes an affinity tag.

9. A cultured cell into which has been introduced an expression vector according to claim 7, wherein said cell expresses the polypeptide encoded by the DNA segment.

10. A method of producing a polypeptide comprising culturing a cell according to claim 9, whereby said cell expresses the polypeptide encoded by the DNA segment, and recovering the polypeptide.

11. The polypeptide made by the method of claim 10.

12. A method of producing an antibody to a polypeptide comprising the following steps:

inoculating an animal with the polypeptide such that the polypeptide elicits an immune response in the animal to produce the antibody; and

isolating the antibody from the animal,

wherein the polypeptide is chosen from,

- a) a polypeptide comprising residues 26 to 546 of SEQ ID NO:2;.
- b) a polypeptide comprising residues 26 to 627 of SEQ ID NO:2;
and
- c) a polypeptide comprising residues 1 to 627 of SEQ ID NO:2

and wherein the antibody produced by the method specifically binds to a polypeptide of SEQ ID NO:2.

13. The antibody produced by the method according to claim 12.

14. A method of producing an antibody to a polypeptide comprising the following steps:

inoculating an animal with the polypeptide such that the polypeptide elicits an immune response in the animal to produce the antibody; and

isolating the antibody from the animal,

wherein the polypeptide comprises at least fifteen consecutive amino acids of the amino acid sequence as shown in SEQ ID NO:2,

and wherein the antibody produced by the method specifically binds to a polypeptide of SEQ ID NO:2.

15. The antibody produced by the method according to claim 14.

16. A method for inhibiting sperm-oocyte fusion comprising contacting the sperm and oocytes with the polypeptide according to claim 1, or a fragment thereof, whereby the polypeptide or fragment inhibits the sperm and oocyte fusion.

17. A method for inhibiting sperm-oocyte fusion comprising contacting the sperm and oocytes with the antibody according to claim 12, whereby the polypeptide or fragment inhibits the sperm and oocyte fusion.

18. A method for inhibiting sperm-oocyte fusion comprising contacting the sperm and oocytes with the antibody according to claim 14, whereby the polypeptide or fragment inhibits the sperm and oocyte fusion.

19. A method for inducing infertility in a mammal, comprising administering to the mammal an contraceptively effective dose of the polypeptide according to claim 1, or a fragment thereof, wherein the polypeptide induces an immune response in the mammal, thereby inducing infertility in the mammal.

20. A method for inducing infertility in a mammal, comprising administering to the mammal the antibody according to claim 12, wherein the polypeptide induces an immune response in the mammal, thereby inducing infertility in the mammal.

21. A method for inducing infertility in a mammal, comprising administering to the mammal the antibody according to claim 14, wherein the polypeptide induces an immune response in the mammal, thereby inducing infertility in the mammal.

22. A composition comprising a contraceptive dose of the polypeptide according to claim 1, or a fragment thereof, and an acceptable carrier, and/or adjuvant.

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